## DHD20130218 (r429+) Wireless TRV (&boiler) controller V0.09 POWER max ~30mA V+ 5V or 3xAA @ ~3.6V+ V0.090 PICAXE+18B20+RFM22+1306 Reg1 3V3 V+C2-10uF↑ 10uF**↑** UC1 PICAXE 18M2+ microcontroller Reg1 3V3 low-dropout regulator TS2950CT-3.3 eg Maplin N68CA TS1 DS18B20 1-wire temperature sensor LDR1 light dependent resistor such as SEN002/techsupplies.co.uk R4 ₹ V+V + (p14)TS1 (like GL5528 1M+ dark, ~10k @ 10 Lux) OV (p5) LED1 'Call for heat' and mode LED. C.7 (p16) LED2 'Boiler on' (optional) Optional DQ RTC1 DS1306 (optional) w/ supercap backup LDR1 UC1 RAD1 RFM22B 868MHz radio module PICAXE 18M2+ XTAL1 32768Hz 6pf load watch crystal C3 supercap to maintain time, or short to GND C.0 (p17) 0F1 should be good for ~100h backup C.5 In (p4) V+R5 [5] Serial / AXE027 B1.A C.3 / SerOut (p2) C.1 (p18) R1 22K R6 ♣ C.4 / SerIn (p3) LED1 RAD1 LED R7 470R ANT GNI B.7 (p13) **GND** SDN RX\_ANT **NIRQ** V+V+ TX\_ANT **NSEL** VCC **SCK** Direct boiler control GPIO 0 SDI (eg via SSR: H is on) GPIO\_1 SPI\_SDI £ 8¶ **SDO** B.0 (p6) GPIO\_2 **GND** \$\frac{1}{2}\$ \R10 B.1 i2c SDA (p7) > SDA B.4 i2c SCL (p10) SCL SPI\_SDO SPI\_SCLK RTC1 V+ RFM22 nSEL LED2 B.2 (p8) > SPI\_SCLK **>** LED VCC1 SDO > SPI\_SDI B.3 (p9) > SPI\_SDO **VCCIF SERMODE** 1HZ SPI\_SDI SPI\_SCLK SCLK INTO! 10 DS1306 CE CE INT1! R115 C.6 (p15) 12. SPI\_SDO **SDI** VCC2 C3\_\_\_ B.5 (p11) RFM22\_nSEL 0F047 B.6 (p12) DS1306\_CE **VBAT** X1C.2 In/Out (p1) X2 **GND** XTAL1 **CRYSTAL**